



May 31, 2005

Mr. Russell Hart  
United States Environmental Protection Agency  
Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

RE: Preliminary Conceptual Design for Horizontal Well Location and Pilot Testing  
Area 9/10, Remedial Design  
Southeast Rockford Groundwater Contamination Superfund Site  
Rockford, Illinois

Dear Mr. Hart:

On behalf of Hamilton Sundstrand (HS), SECOR International Incorporated (SECOR) is providing the following information regarding the preliminary conceptual design for air sparging and soil vapor extraction (AS/SVE) at the Hamilton Sundstrand facility located within Area 9/10 of the Southeast Rockford Groundwater Contamination Superfund Site (SER Site). As part of the Remedial Design to address source material located beneath the HS Plant #1 building, the use of horizontal wells has been evaluated. This letter provides an overview of the conceptual design as it is currently envisioned and provides some detail on the location and pilot testing activities contemplated by HS which are necessary for development of the final remedial design to address this source area. The pilot testing of the horizontal wells is a critical step to appropriately size the air extraction units to avoid under- or over-sizing these units and make the proper selection and sizing of the air treatment technology and capacity. Proper air extraction and air treatment equipment selection are vital for successful, efficient, and cost effective source material remediation beneath Plant #1. The information contained in this letter is preliminary and subject to modification. However, it conveys the essence of the initial conceptual design currently under consideration.

This design concept information is based on potentially optimal placement of the wells which will require access to an off-site property which may or may not be granted. For this conceptual design, the aspect of an off-site access constraint has not been considered a factor. It must be noted that the owner of the DRB property (located south of the HS Plant #1 facility at 2525 11<sup>th</sup> Street) has not been approached regarding access to their property for this purpose at this time. HS plans to enter into discussions with DRB for off-site access of the necessary area based on this preliminary conceptual design.

SECOR, on behalf of HS, is in the process of reviewing all relevant site data including historic and recent Pre-Design Investigation soil and groundwater information as part of the Remedial Design process.

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This information includes, but is not limited to:

- Soil chemical analytical results;
- Groundwater chemical analytical results;
- Groundwater water level data and potentiometric surface maps from 1993 to 2005;
- Site geological information from soil boring and well construction logs;
- Site topographic information;
- Site property boundaries;
- Site storm and sanitary sewer location maps; and
- Site and off-site features including buildings, former underground storage tanks (USTs), and other infrastructure.

The groundwater analytical data, groundwater level data (flow direction), and historical USTs information have been key information in the conceptual well alignment and placement. This conceptual design is based on preliminary discussions with horizontal well installation firms with respect to feasibility and logistic needs. Also, as previously indicated, this concept assumes that off-site access will not be an issue. It will require detailed coordination with the HS Plant #1 personnel and also Illinois Central Railroad.

It is anticipated that two horizontal SVE wells and one horizontal AS well may be installed. The present conceptual alignment corridor and required access areas for installation for the horizontal SVE and AS wells are shown along with relevant site features on the attached Figure 1. Presently, seven-inch diameter borings are being considered which may be completed from the south (off-site property) to north and surface in the parking lot north of the Plant #1 facility. To install the well screen and riser, the pipe would be pulled from north to south through the borehole as the drill bit is retracted to the starting point. The well material being considered is four-inch diameter HDPE with 20 slot screens (0.20 inch). The approximate length of the wells may be between 430 and 490 feet. The screened sections may be covering approximately 275 feet. The two SVE wells may be installed at a target depth of 25 feet below surface grade and spaced 100 feet apart. Based on logs from soil borings in the vicinity, there are no geologic conditions (silt or clay layers) present that would impede soil vapor movement from the near surface soils below the building to the water table. This target depth should also be below any plant or utility piping or other building components.

The AS well may be installed at a target depth of 50 feet. This target depth is approximately 20 feet below the typical water level elevation observed at the site over the past several years. The well installation would use a polymer based drilling fluid additive such as Revert<sup>®</sup> or a similar brand which breaks down into a liquid with a viscosity similar to that of water to minimize the effect of the drilling on the formation permeability and to facilitate removal of the soil cuttings. The collapse of the native material will form the filter pack around the wells.

After installation of the horizontal SVE wells, soil vapor samples may be collected at various locations (via summa canisters or other means) to better understand the chlorinated volatile organic compound (VOC) loading within the vadose zone soil vapor beneath the building.

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These analytical results may also serve as constituent baseline concentrations for pilot test evaluation and future remediation performance monitoring.

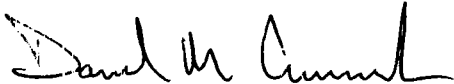
After the wells are installed, pilot testing will be performed to support the final system design. This testing will provide necessary information to determine well spacing, well number, sizing (and selection) of air movement equipment (blowers for extraction and injection) for the SVE and AS systems, and the most appropriate and cost effective means of impacted extracted air treatment. It is anticipated that the horizontal wells installed for pilot testing purposes would be incorporated into the final remedial design.

A work plan for the SVE and AS horizontal well installation and pilot testing is presently being developed. This plan will provide specific well installation, well development, baseline sampling, and pilot test program details introduced in the preliminary conceptual design presented in this letter. Prior to submittal of this work plan, HS plans to engage the DRB property owner and the Illinois Central Railroad regarding access for these activities and to confirm the viability of the optimal well alignment or alternate installation location(s).

Access to the off-site property to the south (DRB) presents a critical step in the implementation of the remedial design process. HS was able to secure access from DRB for the Pre-Design Investigation which consisted of completion of soil borings and monitoring wells. This phase of effort requires a more significant intrusion onto the DRB property and will likely require additional effort and resources for its undertaking. If deemed necessary, HS may request assistance from USEPA in securing the access required.

We appreciate the USEPA's cooperation and involvement in keeping the Area 9/10 Remedial Design effort moving on an appropriate course. As always, if you have any questions, please do not hesitate to call.

Sincerely,  
**SECOR International Incorporated**



David M. Curnock  
Principal Scientist

attachment: Figure 1, Preliminary Conceptual Design for Horizontal Wells and Pilot Testing

cc: Mr. Scott Moyer, HS/UTC  
Ms. Kathleen McFadden, UTC  
Mr. Brian Yeich, UTC  
Mr. Thomas Turner, USEPA  
Mr. Thomas Williams, IEPA  
Mr. Terry Ayers, IEPA

## **ATTACHMENT**

### **Figure 1 Preliminary Conceptual Design for Horizontal Wells and Pilot Testing**

